**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Separation of a Mixture**

**Background Information**

One of the chemist’s primary job is to identify what materials are present in a mixture. To do this, the components of the mixture have to be separated from one another. This is done by exploiting the fact that the components of the mixture have different physical properties such as particle size, boiling points, density, solubilities, and intermolecular attraction for different substances.

This laboratory uses the differences in magnetism, density, and solubility to separate a mixture of Styrofoam, sand, salt, and iron filings.

**Separating a Mixture: Procedure for Part I**

1. Obtain separate samples of each of the four mixture components from your teacher.
2. Use the equipment you have available to make observations of the components and determine their properties.
   1. You may need to run several tests with each substance so don’t use all your sample on the first test.
   2. Look for things like whether the substance is magnetic, whether it dissolves or whether it floats.
3. Record your observations in your data table (on the back of this page). **DO NOT PLACE THE MAGNET IN THE SAMPLE AT ANY TIME! ALWAYS USE THE MAGNET OUTSIDE THE PLASTIC BAG**!
4. **Using your observations, make a plan for what you will do to separate a mixture that includes the four components from step one**.
5. **Write out your plan step by step**

**Separating a Mixture: Procedure for Part II**

1. Review your plan with your teacher.
2. Obtain a sample of the mixture from your teacher. Using only the equipment you have available, run the **procedure you have developed**. You should have each of the components (in its pure form) when you have finished.
3. Clean your lab station. Clean all equipment and return to its proper place. DO NOT DISPOSE OF ANY SOLIDS IN THE SINK! RETURN LEFT OVER SAMPLES TO YOUR TEACHER.

**OBSERVATIONS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | OBSERVATIONS  (include words and images) | Magnetic | More or less dense than water | Soluble in water |
| Styrofoam |  |  |  |  |
| Salt |  |  |  |  |
| Sand |  |  |  |  |
| Iron filings |  |  |  |  |

Step by Step Plan for separating items in the mixture: (include additional steps on a separate sheet of paper)

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